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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: J.P. Hansen et al. Attorney Docket No.: MSFT115463
Application No.: 09/615,182 Group Art Unit: 2172
Filed: July 13, 2000 Examiner: I.M. Woo
Title: SYSTEM AND METHOD FOR SYNCHRONIZING MULTIPLE
DATABASE FILES

RESPONSE AND REQUEST FOR RECONSIDERATION PURSUANT TO 37 C.F.R. § 1.111

Seattle, Washington 98101

October 25, 2002

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TO THE COMMISSIONER FOR PATENTS:

REMARKS

Technology Center 2100

Applicants respectfully request that the above-identified patent application be reexamined and reconsidered.

Claims 1-23 are now pending in this application. In an Office Action dated July 26, 2002 (hereinafter "Office Action"), Claims 1-23 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Buchanan (U.S. Patent No. 5,758,355). Pursuant to 37 C.F.R. § 1.111, and for the reasons set forth below, applicants respectfully request reconsideration and allowance of this application.

Prior to discussing in detail why applicants believe that all of the claims in the application are allowable, a brief description of applicants' invention and the cited references are provided. The following discussion of the disclosed embodiments of applicants' invention and the teachings of the applied references are not provided to define the scope or interpretation of any of applicants' claims. Instead, such discussed differences are provided to help the U.S. Patent and Trademark Office (hereinafter "the Office") better appreciate important claim distinctions discussed thereafter.

LAW OFFICES OF
CHRISTENSEN O'CONNOR JOHNSON KINDNESS^{LLC}
1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100

Summary of the Invention

The present invention is directed to a method, system and computer product for minimizing the amount of data transferred between computing devices during the synchronization of duplicate databases stored on a server and client. One embodiment of the present invention analyzes data stored in duplicate databases to determine the type of download that is executed between the client and server. Based on the analysis, one or the other of two different download options occur. In one option, the server downloads an entire database file to the client, if the last access time of the client database is earlier than the creation time of the server database. In the other option, the server selectively downloads individual data objects from the server database to the client database, if the last access time of the client database is not earlier than the creation time of the server database. As described on page 3, lines 22-26, of applicants' specification, the method and system of the present invention allow users to access and manipulate data stored in duplicate databases while minimizing the amount of data transferred during a database synchronization. These benefits are achieved by the utilization of the different types of download techniques described above.

Another aspect of the present invention provides a method for initializing duplicate databases. In one embodiment, the system deletes a server computer database if the server contains a database and if a received command dictates that the server database be deleted. In addition, the system copies a client computer database to the server if a received command dictates that the database be copied. This method prepares duplicate databases for a synchronization process, such as the synchronization process described above.

Summary of Buchanan

Buchanan purportedly discloses a system and method for the synchronization of a server database. One embodiment disclosed in Buchanan utilizes "distribution tables," which are

LAW OFFICES OF
CHRISTENSEN O'CONNOR JOHNSON KINDNESS^{PLLC}
1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100

distinct from the server database application schema, to locate information in the server database that may require extraction during the synchronization of a database. *Buchanan*: Col. 3, lines 32-36. The distribution tables ostensibly identify information and related server database tables in situations where the information has changed since the last synchronization. *Id.*: Col. 3, lines 36-39.

One embodiment disclosed in *Buchanan* includes database tables with time stamp information indicating when records of a database were last modified. *Id.*: Col. 6, lines 14-15. During the synchronization process, the time stamp information and other modifier information are used to determine whether information must be extracted from the server database tables. *Id.*: Col. 6, lines 17-21. More specifically, the time stamp and modifier information are used to indicate whether or not the table has been updated since the last synchronization by a given client. If an update occurred, the entire table is transferred to the synchronizing client. If there has not been an update since the last synchronization, the table is *not* sent. *Id.*: Col. 6, lines 25-30. This embodiment, and all other embodiments disclosed in *Buchanan*, utilize a "last modified" time stamp to merely determine if a data transfer should occur. *Buchanan* fails to disclose or suggest a method that distinguishes between two different types of download actions based on an examination of a time at which a server database is created.

Rejection of Claims 1-23 Under 35 U.S.C. § 103(a)

The Office Action rejected Claims 1-23 under 35 U.S.C. § 103(a) as being unpatentable over *Buchanan*. The Office Action cites Figure 1 and Col. 1, lines 11-25; Col. 2, lines 17-60; Col. 6, lines 8-63; Col. 4, lines 18-30; Col. 11, lines 50-67, and Col. 12, lines 1-26, as support for *Buchanan*'s alleged disclosure of the elements of Claim 1. The Office Action asserts that *Buchanan* suggests each and every element of Claim 1. As described in more detail below,

applicants respectfully disagree. Pursuant to 37 C.F.R. § 1.111, and for the reasons set forth below, applicants respectfully request reconsideration and allowance of this application.

Claim 1 reads as follows:

1. A method for dynamically synchronizing a duplicated database stored on a server and a client computer, wherein the client computer database comprises a last server access time and a plurality of data objects and the server computer database comprises a creation time and a plurality of data objects, comprising:

downloading the server computer database to the client computer, if the client computer database last server access time indicates a time that is earlier than a time indicated by the creation time of the server computer database;

selectively downloading data objects stored in the server computer database to the client computer database, if the client computer database last server access time indicates a time that is not earlier than a time indicated by the creation time of the server computer database;

receiving a command for determining a database configuration;

deleting the server computer database if the server computer contains a database and if the received command dictates that the server computer database be deleted; and

copying a client computer database to the server computer, if the received command dictates that the client computer database be copied to the server computer.

As distinctly defined in Claim 1, and described in the specification on page 3, line 24, to page 4, line 7, applicants' claimed method is a combination that selectively chooses one or the other of two different download techniques to synchronize databases, in which the selection of the download technique is based on the state of a condition. More specifically, applicants' claimed method synchronizes duplicate databases by either (1) downloading a database to a client computer or (2) selectively downloading data objects stored in the server computer database to the client computer database, depending on which of two possible states of a condition exist. In other words, the server downloads an entire database if one state exists, or selectively downloads individual objects if another state exists. The state of the condition that determines the type of

LAW OFFICES OF
CHRISTENSEN O'CONNOR JOHNSON KINDNESS^{PLLC}
1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100

download that is executed between the server and client is the result of a comparison between a "creation time" of the server database and an "access time" of the client database.

Conversely, Buchanan describes a database synchronization method where the server analyzes a "last modification" time stamp to determine if a table should be transferred to a client computer from a server computer. For instance, Buchanan states:

[i]n the presently preferred embodiment, even server database tables that are not subsetting (i.e., all records sent to synchronization client) contain time stamp and modification information columns to indicate whether or not the tables have been updated since the last synchronization by a given client. If there has been an update, then the entire server table (all records) is transferred to the given synchronizing client. If there has not been an update since the last synchronization, then the table is not sent.

Buchanan: Col. 6, lines 21-30. Although a time stamp comparison is involved, Buchanan's disclosure is limited to a method of analyzing a "last modified" time stamp to merely determine if a table should be transferred from one computer to another. Applicants respectfully submit that this action, or any other action or method disclosed in any of the cited references, does not suggest a method of distinguishing between two options, namely, (1) "downloading the server computer database to the client computer" or (2) "selectively downloading data objects stored in the server" Stated differently, Buchanan's method of updating a table only if a record is modified, does not suggest a method that employs one or the other of two different types of download actions, depending on the state of a condition. Buchanan fails to suggest a method that is even related to applicants' claimed combination of alternative download techniques.

The Office Action asserts that a process that examines a "last modification" time stamp is analogous to applicants' process that examines a "creation time" of a database. *See Office Action:* page 3, line 1. Applicants respectfully disagree, as a "last modified time stamp" of a client database is much different than a "creation time of a server database." Simply put, the time at which a database is created is not equal to or necessarily even close to a time at which a

database is last modified. These two different types of time stamps, creation and last modified, provide different times/dates and are maintained for different and independent reasons. In the present case, the analysis of a "creation time of a server computer database" produces different results and different benefits that are not even contemplated in the cited references. Moreover, Buchanan does not suggest a method that specifically compares a "creation time" with an access time, modification time, or any other type of time stamp. Thus, applicants further submit that Buchanan's disclosure of a method that examines a "modification time" does not suggest any action defined in Claim 1.

With regard to the last three elements of Claims 1, applicants respectfully submit that the claimed method of "deleting the server database if the server computer contains a database and if the command dictates that the server computer database be deleted; and copying a client computer database to the server computer, if the received command dictates that the client computer database be copied to the server computer" is not suggested by Buchanan or any of the cited, but not applied, references. Although Buchanan discloses a method where individual "records" are updated or deleted, applicants respectfully submit that a method of updating or deleting "records" of a database does not suggest applicants' claimed method of employing the combination of deleting and copying an entire database based on data received by a client. As distinctly claimed, and described on page 15 of applicants' specification, applicants combination of the claimed actions of "deleting" and "copying" a database provide a unique way to initialize duplicate databases for a data synchronization. This benefit of the claimed combination of copying and deleting databases is not even contemplated by Buchanan or any other cited reference.

To establish a *prima facie* case of obviousness, MPEP § 2143 requires that the prior art references "*must* teach or suggest all of the claim limitations," and that there "*must* be some

LAW OFFICES OF
CHRISTENSEN O'CONNOR JOHNSON KINDNESS^{PLLC}
1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100

suggestion or motivation, either in the references themselves or in knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings." MPEP § 2143 (August 2001) (emphasis added). As described above, the Office has failed to show, and applicants are unable to find, where Buchanan or any other cited reference, alone or in combination, disclose or suggest the subject matter defined in Claim 1. More specifically, the Office does not provide any reference that discloses or suggests applicants' claimed combination of actions that provide alternative download techniques, e.g., "selectively downloading data objects" or "downloading the server computer database," based on the state of a condition that compares a client computer access time and a server database creation time. At best, the cited references only disclose methods that are akin to fragments of applicants' claim elements. Since Buchanan does not teach or suggest each and every element of applicants' claimed invention, applicants respectfully submit that the Office has not established a *prima facie* case of obviousness and respectfully submit that Claim 1 is in condition for allowance.

Since Claims 2-5 depend from Claim 1, and Claims 6 and 7 are computer-readable medium and apparatus claims having language that parallels the language of Claim 1, the analysis applied to Claim 1 also applies to these claims and their respective dependent claims. Therefore, applicants respectfully submit that Claims 2-7 are in condition for allowance for the same reasons as Claim 1. Further, applicants submit that the dependent claims are patentable for additional reasons.

With respect to Claim 5, none of the cited references, alone or in combination, disclose or suggest a method of "downloading the server computer database to the client computer, if the client computer database last server access time is not within a predetermined period of time from a clock time maintained by the server computer." As described above, Buchanan's disclosure is limited to a system and method that examines a time stamp to determine if a table

LAW OFFICES OF
CHRISTENSEN O'CONNOR JOHNSON KINDNESS^{PLLC}
1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100

should be sent. *See Buchanan*: Col. 6, lines 25-30. Applicants also respectfully submit that an examination of a time stamp does not suggest a method that is even related to a method that downloads a database if a time stamp is not within a "*time period*." As described in applicants' specification, the "predetermined time period" allows the system of the present invention to determine if a database has *expired*, e.g., where a given period of time has elapsed since the last access. Buchanan completely fails to describe or suggest a method that is even related to this claimed method.

Applicants respectfully submit that Claims 8-15 are also in condition for allowance. Like Claim 1, Claim 8 defines a claimed combination of actions, including the combination of (1) "downloading the server computer database to the client computer, if the client computer database last server access time indicates a time that is earlier than a time indicated by the creation of the server computer database" or (2) "selectively downloading data objects stored in the server . . . if the client computer database last server access time indicates a time that is not earlier than a time indicated by the creation time of the server computer database." As stated above, Buchanan's method of downloading or updating a table only if a record is modified, or any other embodiment disclosed in Buchanan, does *not* suggest a method that *utilizes two different types of downloads* depending on the analysis of a creation time stamp. Thus, for at least these reasons, applicants submit that the rejection of Claim 8 and its dependent claims should be withdrawn.

With regard to Claim 16, applicants respectfully submit that the claimed method is not taught or suggested by the cited references. Claim 16 recites a method of "deleting the server database if the server computer contains a database and if the command dictates that the server computer database be deleted; and copying a client computer database to the server computer, if the received command dictates that the client computer database be copied to the server

computer" As stated above, although Buchanan discloses a method where individual "records" are updated or deleted, applicants respectfully submit that a method of updating or deleting "records" of a database does not suggest a method of deleting or copying an entire database. Moreover, Buchanan does not suggest a combination of actions, including the combination of (1) "deleting the server database if the server computer contains a database and if the command dictates that the server computer database be deleted," and (2) "copying a client computer database to the server computer, if the received command dictates that the client computer database be copied to the server computer." As distinctly claimed, and described on page 15 of applicants' specification, applicants method of combining these actions of "deleting" and "copying" a database provide a method for initializing duplicate databases for proper synchronization. The benefits of initializing duplicate databases in this manner, let alone a method that combines the actions of copying and deleting entire databases, are not even contemplated by Buchanan or any of the other cited but not applied references. Thus, for at least these reasons, applicants submit that the rejection of Claim 16 and its dependent claims should be withdrawn.

With respect to Claim 19, applicants respectfully submit that the claimed method is not taught or suggested by the cited references. Claim 19 recites a method of "[1] updating the entire client computer database with the server computer database if the synchronization data includes the server computer database; and [2] updating selective client computer database data objects, if the synchronization data only includes corresponding selective server data objects."

As defined, applicants' claimed combination of actions includes the use of two different types of data transfers: (1) "updating the entire client computer database" and (2) "updating selective client computer database data objects," which each depend on the state of a condition. In Claim 19, the type of data transfer performed by the method depends on the type of

LAW OFFICES OF
CHRISTENSEN O'CONNOR JOHNSON KINDNESS^{PLLC}
1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100

information that is received by a client computer. Neither Buchanan, nor any of the cited but not applied references, alone or in combination, teach or suggest applicants' claimed combination of actions, which include two different types of data transfers that each depend on the type of information that is received by a client computer.

The Office Action again cites Col. 6, lines 13-43, as support for Buchanan's disclosure of applicants' method defined in Claim 19. This section of Buchanan discloses a method of transferring a table to a given synchronizing client if there has been an update since the last synchronization. Applicants submit that neither this method, nor any other method described in Buchanan, teaches or suggests applicants' claimed combination of actions that includes two different types of data transfers. Moreover, the cited references fail to suggest a method where the execution of two different types of data transfers depend on an analysis of the information received by a client computer. Thus, applicants submit that Claim 19 is in condition for allowance. By virtue of their dependency on Claim 19, applicants submit that Claims 20-23 are also in condition for allowance for at least the same reasons that Claim 19 is allowable.

CONCLUSION

In view of the foregoing remarks, it is submitted that the present application is now in condition for allowance. Reconsideration and reexamination of the application, and allowance of

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LAW OFFICES OF
CHRISTENSEN O'CONNOR JOHNSON KINDNESS^{PLLC}
1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100

the claims are solicited. If the Examiner has any questions or comments concerning this matter, the Examiner is invited to contact applicants' undersigned attorney at the number below.

Respectfully submitted,

CHRISTENSEN O'CONNOR
JOHNSON KINDNESS^{PLLC}



Scott Y. Shigeta
Registration No. 50,398
Direct Dial No. 206.695.1722

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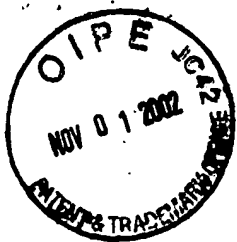
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CHRISTENSEN O'CONNOR JOHNSON KINDNESS^{PLLC}
1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100



BOX NON-FEE
AMENDMENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: J.P. Hansen et al. Attorney Docket No.: MSFT115463
Application No.: 09/615,182 Group Art Unit: 2172
Filed: July 13, 2000 Examiner: I.M. Woo
Title: SYSTEM AND METHOD FOR SYNCHRONIZING MULTIPLE
DATABASE FILES

AMENDMENT TRANSMITTAL LETTER

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TO THE COMMISSIONER FOR PATENTS:

A. Amendment Transmittal

Transmitted herewith is an amendment in the above-identified application.

- ☒ 1. No additional claim fee is required, as shown below.
☐ 2. The claim fee has been calculated as shown below.

COMPUTATION OF FEE FOR CLAIMS AS AMENDED

	Claims Remaining After Amendment		Highest Number Previously Paid For		Present Extra		Rate		Additional Fee
Total Claims	45	-	45	=	0	x	18	=	0
Independent Claims	4	-	4	=	0	x	84	=	0
TOTAL									\$0

B. Additional Fee Charges or Credit for Overpayment

The Commissioner is hereby authorized to charge any fees under 37 C.F.R. §§ 1.16, 1.17 and 1.18 which may be required during the entire pendency of the application, or credit any overpayment, to Deposit Account No. 03-1740. This authorization also hereby includes a request

LAW OFFICES OF
CHRISTENSEN O'CONNOR JOHNSON KINDNESS^{PLLC}
1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100

for any extensions of time of the appropriate length required upon the filing of any reply during the entire prosecution of this application. A copy of this document is enclosed.

Respectfully submitted,

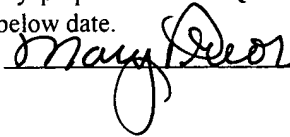
CHRISTENSEN O'CONNOR
JOHNSON KINDNESS^{PLLC}



Scott Y. Shigeta
Registration No. 50,398
Direct Dial No. 206.695.1722

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LAW OFFICES OF
CHRISTENSEN O'CONNOR JOHNSON KINDNESS^{PLLC}
1420 Fifth Avenue
Suite 2800
Seattle, Washington 98101
206.682.8100